

CLAIMS:

1. An apparatus for applying an inward force to a medical device comprising:
a blade constraining member;
5 a first mount rotatable with respect to the blade constraining member;
a first plurality of blades arranged to form a first chamber whose size may be varied by rotating the first mount with respect to the blade constraining member, each blade of the first plurality of blades pivotally connected to the first mount;
a second mount rotatable with respect to the blade constraining member;
10 a second plurality of blades arranged to form a second chamber whose size may be varied by rotating the second mount with respect to the blade constraining member, each blade of the second plurality of blades pivotally connected to the second mount;
wherein the blade constraining member is engaged with at least one blade from the first plurality of blades and with at least one blade from the second plurality of
15 blades.
2. The apparatus of claim 1, further comprising a first drive device arranged to rotate the first mount with respect to the blade constraining member.
3. The apparatus of claim 2, further comprising a second drive device arranged to rotate the second mount with respect to the blade constraining member.
- 20 4. The apparatus of claim 1, wherein the blade constraining member is slidably engaged with at least one blade from the first plurality of blades and with at least one blade from the second plurality of blades.
5. The apparatus of claim 4, wherein a blade from the first plurality of blades further comprises an aperture, a blade from the second plurality of blades further
25 comprises an aperture, and the blade constraining member extends through the aperture of the blade from the first plurality of blades and through the aperture of the blade from the second plurality of blades.
6. The apparatus of claim 4, wherein a blade from the first plurality of blades further comprises a slot, and the blade constraining member translocates within the slot
30 as the first mount is rotated with respect to the blade constraining member.
7. The apparatus of claim 1, further comprising a plurality of blade constraining members, wherein each blade constraining member is engaged with one blade from the first plurality of blades and with one blade from the second plurality of blades.

8. The apparatus of claim 1, wherein the first mount and first plurality of blades comprise an independently operable discrete section, the second mount and second plurality of blades comprise another independently operable discrete section, further comprising a third independently operable discrete section.
- 5 9. The apparatus of claim 8, further comprising 4 to 80 independently operable discrete sections.
10. The apparatus of claim 9, further comprising a drive device for each independently operable discrete section.
11. The apparatus of claim 1, wherein the first plurality of blades includes three or
10 more blades.
12. The apparatus of claim 1, wherein the first plurality of blades includes eight blades.
13. The apparatus of claim 1, wherein the first plurality of blades includes 16 or more blades.
- 15 14. An apparatus for applying an inward force to a medical device comprising:
a mount;
a plurality of blades arranged to form a chamber whose size may be varied, each
blade pivotally connected to the mount;
at least one blade constraining member; and
20 a motorized drive device;
wherein at least one blade is slidably engaged with the blade constraining member; and the motorized drive device is arranged to rotate the mount with respect to the blade constraining member.
15. The apparatus of claim 14, wherein at least one blade further comprises an
25 aperture, and the blade constraining member extends through the aperture.
16. The apparatus of claim 15, wherein the aperture comprises a slot, and the blade constraining member translocates within the slot as the mount is rotated with respect to the blade constraining member.
17. The apparatus of claim 14, wherein one blade constraining member is provided
30 for each blade, and each blade is slidably engaged with a blade constraining member.
18. The apparatus of claim 14, wherein the motorized drive device comprises an electric motor, a linear actuator, a hydraulic drive system or a pneumatic drive system.
19. The apparatus of claim 14, wherein the mount comprises a gear that meshes with a drive gear of the motorized drive device.

20. The apparatus of claim 14, wherein the chamber has a length of 2 mm or less.
21. An apparatus for applying an inward force to a medical device comprising:
a plurality of blade constraining members;
a first mount having a plurality of first blades arranged to form a first chamber,
5 each first blade being pivotally attached to the first mount;
a second mount having a plurality of second blades arranged to form a second
chamber, each second blade being pivotally attached to the second mount;
each blade having a slot;
each blade constraining member passing through the slot of a first blade and
10 through the slot of a second blade;
wherein the size of the first chamber may be adjusted by rotation of the first
mount relative to the blade constraining members; and
wherein the size of the second chamber may be adjusted by rotation of the
second mount relative to the blade constraining members.
- 15 22. A method of reducing the size of a medical device, the method comprising the
steps of:
providing an apparatus for applying an inward force to a medical device,
said apparatus comprising a plurality of blades arranged to form a chamber; each
blade being pivotally secured to a mount; at least one blade being slidably
20 engaged with a blade constraining member; wherein the size of the chamber may
be adjusted by rotating the mount with respect to the blade constraining member;
placing at least a portion of a medical device within said chamber; and
rotating the mount with respect to the blade constraining member to
reduce the size of the chamber, thereby reducing the size of at least a portion of
25 the medical device.
23. The method of claim 21, wherein the apparatus further comprises a plurality of
second blades arranged to form a second chamber; each second blade being pivotally
secured to a second mount; at least one second blade being slidably engaged with said
blade constraining member; wherein the size of the second chamber may be adjusted by
30 rotating the second mount with respect to the blade constraining member; and
wherein the method further comprises:
placing a portion of the medical device within said second chamber; and

rotating the second mount with respect to the blade constraining member to reduce the size of the second chamber, thereby reducing the size of a second portion of the medical device.

24. The method of claim 23, wherein the first chamber may be adjusted
5 independently from the second chamber.

25. The method of claim 22, wherein the medical device is a stent.

26. The method of claim 25, wherein the stent is disposed about a medical balloon, and the medical balloon is disposed about a catheter.

27. The method of claim 22, wherein the mount is rotated relative to the blade
10 constraining member by a drive device.

28. The method of claim 21, further comprising the step of cryogenically cooling the blades.